Facility-Wide Emissions Reported by Gunite	
CO	80.74
CO_2	46934
Glycol Ether	0
Lead	0.14
Methane	0.006
N_2O	0
NH_3	0.025
NOx	1.19
PM	362
PM_{10}	362
$PM_{2.5}$	NR
SO_2	27.42
VOM	82.749

Facility-Wide Emissions		Limits
CO	53.21	
CO_2	12607.884	
Glycol Ether	4.55	
Lead	1.01	
Methane	0.24165111	
N_2O	0.23114454	
NH_3	0.33621024	
NOx	17.24	54.33
PM	138.98	481.56
PM_{10}	118.56	
$PM_{2.5}$	118.56	
SO_2	77.81	97.92
VOM	146.13	258.03

Boilers #1 and #2

Pollutant	Natural Gas Throughput (MMCF/year)	Emission Factors (lb/MMCF)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*
CO	210.1314	84	4.57	8.8255
CO_2	210.1314	120000	6525.82	12607.8840
Glycol Ether	210.1314		0.00	0.0000
Lead	210.1314	0.0005	0.00	0.0001
Methane	210.1314	2.3	0.13	0.2417
N_2O	210.1314	2.2	0.12	0.2311
NH_3	210.1314	3.2	0.17	0.3362
NOx	210.1314	100	5.44	10.5066
PM	210.1314	1.9	0.10	0.1996
PM_{10}	210.1314	7.6	0.41	0.7985
$PM_{2.5}$	210.1314	7.6	0.41	0.7985
SO_2	210.1314	0.6	0.03	0.0630
VOM	210.1314	5.5	0.30	0.5779

* Based on 3,864 hours of operation, reported on AER

** Emission factors from AP-42

Cupolas

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366	145	26.78	44.38	0.887
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366	1.1	0.61	1.01	0.020
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366	0.1	3.69	6.12	0.122
PM	122439.366	13.11	7.26	12.04	0.241
PM_{10}	122439.366	12.4	6.87	11.39	0.228
$PM_{2.5}$	122439.366	12.4	6.87	11.39	0.228
SO_2	122439.366	1.25	46.18	76.52	1.529
VOM	122439.366	0.18	0.03	0.06	0.001

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 98.5% control efficiency for venturi scrubbers (for Lead, PM, PM10 and PM2.5) and 99.5% efficiency for afterburner (for VOM and CO)

Ductile Operations (including Tapping/Slagging, Holding Furnace and Inoculation)

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton) *Tapping/Slagging* **	Uncontrolled Emission Factors (lb/ton) *Holding Furnace* **	Uncontrolled Emission Factors (lb/ton) *Inoculation* **	Corrected Emissions lb/hr	Corrected Emissions tons/year*
CO	0				0	0
CO_2	0				0	0
Glycol Ether	0				0	0
Lead	0				0	0
Methane	0				0	0
N_2O	0				0	0
NH_3	0				0	0
NOx	0				0	0
PM	0	0.69	0.9	4	0	0
PM_{10}	0	0.62	0.86		0	0
$PM_{2.5}$	0	0.62	0.86		0	0
SO_2	0				0	0
VOM	0			0.005	0	0

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

Shotblasters

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	109626.991			0.00	
CO_2	109626.991			0.00	
Glycol Ether	109626.991			0.00	
Lead	109626.991			0.00	
Methane	109626.991			0.00	
N_2O	109626.991			0.00	
NH_3	109626.991			0.00	
NOx	109626.991			0.00	
PM	109626.991	17	5.29	9.32	0.163
PM_{10}	109626.991	1.7	0.53	0.93	0.016
$PM_{2.5}$	109626.991	1.7	0.53	0.93	0.016
SO_2	109626.991				
VOM	109626.991				

* Based on 3,523 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

Paint Booths

Pollutant	Paint Usage (gal)	Paint Usage (ton)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	12812	64.63654				
CO_2	12812	64.63654				
Glycol Ether	12812	64.63654	140.8	2.58	4.55	140.80
Lead	12812	64.63654				
Methane	12812	64.63654				
N_2O	12812	64.63654				
NH_3	12812	64.63654				
NOx	12812	64.63654				
PM	12812	64.63654	240.5	0.13	0.23	7.22
PM_{10}	12812	64.63654	240.5	0.13	0.23	7.22
$PM_{2.5}$	12812	64.63654	240.5	0.13	0.23	7.22
SO_2	12812	64.63654				
VOM	12812	64.63654	281.5	5.16	9.10	281.47

* Based on 3,523 hours of operation, reported on AER

** Emission Factor calculated by mass balance as follows:

VOC (lb/ton) = VOC Content of Paint (lb/gal) * (1/ Density (lb/gal)) * (2,000 lbs / 1 ton)

PM (lb/ton) = Solids Content of Paint (lb/gal) * (1/ Density (lb/gal)) * (2,000 lbs / 1 ton) * (1 - 75% Transfer Efficiency)

Controlled Emissions assume 97% particulate control efficiency for paint filters.

Charge Handling

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	0.6	0.22	0.37	0.007
PM_{10}	122439.366	0.36	0.13	0.22	0.004
$PM_{2.5}$	122439.366	0.36	0.13	0.22	0.004
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

Pouring

Pollutant	Metal Throughput (tons/year)	Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*
CO	122439.366			0.00
CO_2	122439.366			0.00
Glycol Ether	122439.366			0.00
Lead	122439.366			0.00
Methane	122439.366			0.00
N_2O	122439.366			0.00
NH_3	122439.366			0.00
NOx	122439.366	0.01	0.37	0.61
PM	122439.366	0.26	9.60	15.92
PM_{10}	122439.366	0.26	9.60	15.92
$PM_{2.5}$	122439.366	0.26	9.60	15.92
SO_2	122439.366	0.02	0.74	1.22
VOM	122439.366	0.14	5.17	8.57

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

Cooling

Pollutant	Metal Throughput (tons/year)	Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*
CO	122439.366			0.00
CO_2	122439.366			0.00
Glycol Ether	122439.366			0.00
Lead	122439.366			0.00
Methane	122439.366			0.00
N_2O	122439.366			0.00
NH_3	122439.366			0.00
NOx	122439.366			0.00
PM	122439.366	1.4	51.72	85.71
PM_{10}	122439.366	1.4	51.72	85.71
$PM_{2.5}$	122439.366	1.4	51.72	85.71
SO_2	122439.366			0.00
VOM	122439.366	0.118	4.36	7.22

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

Primary Shakeout

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	2.56	0.95	1.57	0.031314766
PM_{10}	122439.366	1.792	0.66	1.10	0.022
$PM_{2.5}$	122439.366	1.792	0.66	1.10	0.022
SO_2	122439.366				
VOM	122439.366	0.96	35.46	58.77	1.174

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

Secondary Shakeout

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	0.64	0.24	0.39	0.007828692
PM_{10}	122439.366	0.448	0.17	0.27	0.005
$PM_{2.5}$	122439.366	0.448	0.17	0.27	0.005
SO_2	122439.366				
VOM	122439.366	0.24	8.87	14.69	0.294

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

Sand Conveying

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

Sand Screening

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

Fluidized Bed Sand Cooler

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

Sand Mullers

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER
** Emission Factor Obtained from TVOP 96030131
*** Corrected emissions assume 99% control for baghouse.
**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

New Sand Storage

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

Molding Line

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	3.6	1.33	2.20	0.04403639
PM_{10}	122439.366	0.54	0.20	0.33	0.007
$PM_{2.5}$	122439.366	0.54	0.20	0.33	0.007
SO_2	122439.366				
VOM	122439.366	0.77	28.45	47.14	0.942

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

Casting Conveyor

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	122439.366				
CO_2	122439.366				
Glycol Ether	122439.366				
Lead	122439.366				
Methane	122439.366				
N_2O	122439.366				
NH_3	122439.366				
NOx	122439.366				
PM	122439.366	0.032	0.012	0.02	0.000391435
PM_{10}	122439.366	0.012	0.004	0.01	0.00015
$PM_{2.5}$	122439.366	0.012	0.004	0.01	0.00015
SO_2	122439.366				
VOM	122439.366				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouse.

**** The throughput reported by Gunite appears to be for metal throughput. The calculation assumes a 1:1 sand-to-metal ratio.

OD Table Grinder

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	0				
CO_2	0				
Glycol Ether	0				
Lead	0				
Methane	0				
N_2O	0				
NH_3	0				
NOx	0				
PM	0	17	0	0.00	
PM_{10}	0	1.7	0	0.00	
$PM_{2.5}$	0	1.7	0	0.00	
SO_2	0				
VOM	0				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouses

ID Table Grinder

Pollutant	Metal Throughput (tons/year)	Uncontrolled Emission Factors (lb/ton)**	Corrected Emissions lb/hr	Corrected Emissions tons/year*	Emission Factor with Controls (lb/ton)
CO	0				
CO_2	0				
Glycol Ether	0				
Lead	0				
Methane	0				
N_2O	0				
NH_3	0				
NOx	0				
PM	0	17	0	0.00	
PM_{10}	0	1.7	0	0.00	
$PM_{2.5}$	0	1.7	0	0.00	
SO_2	0				
VOM	0				

* Based on 3,314 hours of operation, reported on AER

** Emission Factor Obtained from TVOP 96030131

*** Corrected emissions assume 99% control for baghouses

Emission Unit ID	Emission Factor (lb/ton)[A] PM	VOM	NO_x	SO_2	Emission Factor Source (FIRE)
FE-CH1	0.6	-	-	-	3-04-003-15
FE-CUP1, 2	13.11[B,C]	0.18[B]	0.10[B]	1.25[B]	3-04-003-01
FE-EHF1, 2	0.9[A]	-	-	-	3-04-003-03
FE-TS1	0.69[C]	-	-	-	3-04-003-01
FE-MI	4.0	0.005	-	-	3-04-003-10
FE-P1	0.26[F]	0.14	0.01	0.02	3-04-003-20
FE-C1	1.4	0.118	-	-	3-04-003-25
FE-SO1	2.56[D]	0.96[E]	-	-	3-04-003-31
FE-SO2	0.64[D]	0.24[D]	-	-	3-04-003-31
FE-SC1	3.6	-	-	-	3-04-003-50
FE-SS1	3.6	-	-	-	3-04-003-50
FE-FBC1	3.6	-	-	-	3-04-003-50
FE-SM1	3.6	-	-	-	3-04-003-50
FE-NSS1	3.6	-	-	-	3-04-003-50
FE-SH1, 2	3.6	-	-	-	3-04-003-50
FE-ML1	3.6	0.77[E]	-	-	3-04-003-50
FE-LPC1	3.6	0.77[E]	-	-	3-04-003-50
FE-CC1	0.032[D]	0.012[D]	-	-	3-04-003-31
FE-SB1	17.0	-	-	-	3-04-003-40
FE-SB2	17.0	-	-	-	3-04-003-40
FE-SB3	17.0	-	-	-	3-04-003-40
FE-TG1	17.0	-	-	-	3-04-003-40
FE-TG2	17.0	-	-	-	3-04-003-40

[A] Emission factor basis is amount of material (e.g., metal, sand, castings) charged or processed, unless otherwise noted. The emission factor for an Electric Holding Furnace is in units of lb/ton gray iron produced.

[B] Cupola emission factors include emissions from coke combustion.

[C] Cupola PM emission factor listed in FIRE, 3-04-003-01, is split between Cupola (95%) and Cupola Tapping/Slagging (5%).

[D] Casting shakeout PM and VOM emission factors listed in FIRE, 3-04-003-31, are split between

Primary Shakeout (80%) and Secondary Shakeout (20%).

[E] These VOM emission factors are based on material balance.

[F] PM emission factor is based on site specific test data.

Emissions (lb) = Emissions Factor (lb/ton) x Material Charged/Processed/Produced (ton) x $[1-\eta_{Capture} \times \eta_{Control}]$

Where:

$\eta_{Capture}$ = Capture Efficiency/100%

$\eta_{Control}$ = Control Efficiency/100%

(Efficiency as determined by manufacturers or vendors of the control devices or the most recent emissions tests)